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ABSTRACT

While the increase of older students in college undergraduate programs across the nation and the increasing need for teachers have been documented in a multitude of diverse research studies, there is little to link these two areas of research. This study provides a comparative analysis of 10 traditional and 22 nontraditional student teachers' performance on teacher competency measures. For this study, nontraditional students are individuals 24 years of age and older. The competency measures are divided into two parts: assessment of academic knowledge--ACT scores, grade point average, and NTE scores; and demonstration of teaching skills as measured by the student teaching evaluation scores. The Mississippi Teacher Assessment Instrument was used to derive these scores. The analysis of the data, done through a large correlation matrix, reveals relationships between achievement indicators and performance on the teacher competency measures, as well as an achievement profile of traditional and nontraditional students as it is colored by selected demographic variables. (Author/IAH)

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RELATIONSHIPS AMONG VARIOUS DEMOGRAPHIC VARIABLES AND MEASURES OF TEACHER COMPETENCE: MAKING SENSE OF A VARIETY OF BIVARIATE CORRELATIONS

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ABSTRACT

RELATIONSHIPS AMONG VARIOUS DEMOGRAPHIC VARIABLES AND MEASURES OF TEACHER COMPETENCE: MAKING SENSE OF A VARIETY OF BIVARIATE CORRELATIONS

While the increase of older students in college undergraduate programs across the nation and the increasing need for teachers have been documented in a multitude of diverse research studies, there is little to link these two areas of research.

This study provides a comparative analysis of traditional and non-traditional student teachers' performance on teacher competency measures. For this study, non-traditional students are individuals 24 years of age and older. The competency measures are divided into two parts: assessment of academic knowledge - ACT scores, grade point average and NTE scores; and demonstration of teaching skills as measured by the student teaching evaluation scores.

The analysis of the data done through a large correlation matrix reveals relationships between achievement indicators and performance on the teacher competency measures as well as a achievement profile of traditional and non-traditional students as it is colored by selected demographic variables.

RELATIONSHIPS AMONG VARIOUS DEMOGRAPHIC VARIABLES AND MEASURES OF TEACHER COMPETENCE: MAKING SENSE OF A VARIETY OF BIVARIATE CORRELATIONS

INTRODUCTION

Intense public scrutiny of America's educational system has prompted internal analysis of teacher training programs by the public schools as well as institutions of higher learning. The accompanying accountability factor has increased pressure for the classroom teacher to produce positive student achievement outcomes. A successful teacher is an individual who can facilitate the students' learning through the combination of transferring content knowledge and eliciting active student participation in the teaching-learning process. These successful teachers are needed to meet the challenge of today's classrooms. Schools and teachers' training programs are studying ways to fill the nation's need for teachers who make learning happen.

Lovelace and Martin (1984) state that the goal for the evaluation of teacher effectiveness on the preservice and early service levels is two-fold for the colleges and universities granting degrees. There is a need to predict prospective teacher effectiveness in the classroom as a means of quality control of the academic programs as well as the program's graduates. Secondly, there is a need to identify areas of weakness in order to improve instruction in the program and in the prospective teacher. The stage is set for the dichotomy in the teacher training program: the academic preparation of the teacher with teacher certification as the desired end and teacher performance in the classroom.

Rosner and Howey (1982) make the connection between knowledge base and teacher performance to emphasize that the expectation of the teacher is to adjust theoretical principles to fit specific situations or conditions, "sensibly and sensitively" (p. 9). The question is not what the teacher knows but how he or she is able to apply knowledge to the problem.

In the quest for training programs which would produce successful teachers, a multitude of variables has been studied in an attempt to determine relevant indicators or predictors of teacher success in the certification process as well as in the classroom. The purpose of this study is to look at a wide range of variables to determine answers to questions regarding satisfactory preparation of students for certification and classroom performance.

CERTIFICATION

As of 1988, every state except Alaska and Iowa has adopted or is in the process of adopting some form of a teacher testing program for certification (Salzman, 1989). Many of the states require teacher candidates to pass a written test. Procedures and requirements vary from state to state. According to Pratt, Delucia and Williams (1987), competency assessment for teachers can take place prior to admission to the education program, prior to teacher certification, and at both ends of the process. There is also a variation in the use of nationally standardized tests as well as customized tests from state to state.

Many of the states use the National Teachers Examination (NTE) as the standardized measure of teacher competence. In a study done in Mississippi by Hankins and Hancock (1984), the NTE was found appropriate for the assessment needs of the State. A panel of judges was used to evaluate the appropriateness of the test and it was found that 94% of the Core Battery questions were content appropriate and 85% of the area examination questions were content appropriate. 71% of the judges reported a close correlation between the content of the tests and the teacher education sequence (p. 56). The statement recapping the test choice by Hankins and Hancock in the above document could probably be echoed in many states across the nation.

> Despite their national orientation, the content of nearly all the tests in the NTE was judged to be sufficiently congruent with the content of the teacher training programs in Mississippi to support the conclusion that the NTE are a fair measure of the knowledge sought to be imparted by those programs. (p. 9).

White and Tierney (1989) are quick to point out that multiple measures are better than a single evaluation tool in teacher competency assessment. Other researchers agree with White and Tierney (Moore, et al. 1991; Salzman 1989; and Lovelace & Martin 1984). According to White and Tierney, the NTE is useful as an assessment component because it gives a single comparative score which cuts across a range of colleges and course work.

There are other components in the pool of assessment indicators which are significantly related and can provide diagnostic data on deficiencies and the need for course work or other study in order for the student to pass the NTE for

certification purposes. White and Tierney (1989) state that the strong correlation between the grade point average (GPA) and test scores are equally useful in assessing the subject matter competency of a study. Egan and Ferre (1989) found significant relationships between the grade point averages, the American College Test (ACT) subtests scores and the NTE. They found that the GPA and ACT scores were significant predictors of student achievement on the NTE Core Battery. These researchers point out the observation that Lovelace and Martin (1984) make that the relationship is so strong between the ACT and NTE scores the tests might be measuring the same variables and that high scoring students on the ACT should be exempt from taking the NTE (p. 229). Tarver and Carr (1983) found that the ACT overall scores were the best predictors of NTE composite scores. Other useful predictors according to these researchers include the student's GPA, the ACT math score and the GPA for the education program courses.

The NTE Core Battery measures the student's academic knowledge and ability with an emphasis on problem solving and decision making (Pratt, DeLucia and Williams, 1987). These researchers found that the use of predictive variables could provide help with intervention strategies for the student. Specifically, the Professional Knowledge section of the NTE was used as part of the formula.

Thus, in the reflection of the assessment components to measure teacher competence, we find that the NTE score in conjunction with the ACT and GPA help to provide a picture of the

potential teacher's academic ability. The field of teaching however, is broader than what is measured in this test. Therefore, we need to continue to look at a variety of data sources to judge teacher competency.

TEACHER PERFORMANCE IN THE CLASSROOM

The academic ability of the teacher does not guarantee effectiveness in the classroom if the teacher is not able to apply his or her knowledge to meet the needs and abilities of the students. Thus, a measurement of academic ability such as found in the NTE should be considered as one part of the teacher assessment measures. The NTE is a weak predictor of actual classroom performance (Lovelace and Martin, 1984; Moore, Schurr and Henriksen, 1991). Lovelace and Martin say that the relationship between the teacher's intelligence quota, GPA, college board test scores and teacher effectiveness show positive but small correlations. Other measures of performance prediction on such variables as attitude, flexibility and commitment are ineffective because no set of skills has been identified to discriminate between effective and ineffective teachers.

What then, are measures which would help schools to find effective and successful teachers? Salzman (1989) has a list of abilities which should be tested, which because of their nature,

are difficult to measure through paper and pencil tests. They include:

- Awareness of, ability to apply knowledge to teaching
- Content/discipline based knowledge
- Ability to differentiate content offering according to the needs and competencies of the students
- Communication skills - interpersonal, oral and written skills
- Ability to plan and implement instruction (pp. 19-20)

These teacher competencies and abilities must be observed in order to be evaluated, prompting the need for interactive evaluations of teaching skills in the classroom. Lovelace and Martin (1984) suggest the use of the NTE with some objective means of observation to provide a more accurate description of the prospective teacher's performance in the classroom. The Teacher Performance and Appraisal Instrument (TPAI) is an observation instrument used by trained observers which concentrates on teaching techniques used in the classroom. This instrument is categorized into five sections: Teaching Plans and Materials; Classroom Performance; Interpersonal Skills; Professional Standards; and Student Perceptions.

In the State of Mississippi, there is a similar instrument named the Mississippi Teacher Assessment Instrument (MTAI) which is used for preservice and entry level teachers. For the preservice teachers at the University of Southern Mississippi, the student teacher is evaluated by the cooperating teacher and a USM evaluator for each of the two student teaching experiences.

In examining the relationship between these measures and the NTE, it was found that the correlation scores were very poor for

the NTE and TPAI (Brown and Wells, 1988) and for the NTE scores and the supervising teacher's grades (Erickson, 1971). Erickson summarizes that what the NTE measures is not related to what the teaching supervisors grade.

The assessment of teacher training programs and the search for successful teacher candidates are complex tasks which necessitate the perusal of the many facets of the program and the student. All efforts need to focus upon component puzzle pieces which are necessary to complete the picture of a successful teacher. As seen by the preceding discussion, multiple assessment methods need to be used and studied. Salzman (1989) suggests that an assessment instrument should combine written, interactive and demonstration components. Perhaps it is this kind of broad range of assessments which will help to record the broad and complex range of skills and abilities needed in successful teaching.

METHODOLOGY

STUDY SAMPLE

This study centers on 496 University of Southern Mississippi students who student taught during the Fall semester of 1991 and the Spring semester of 1992. The sample was made up of 87.9% female. The ethnic breakdown of the group included 94.2% European-American, 3.6% African-American and .4% Hispanic-American. Elementary teaching majors made up 57% of the study population with the remaining 43% being secondary majors and special education majors.

The subjects ranged in age with 33.4% of the population between 21 and 23 years of age. The largest percentage of students, 39.7%, were between 24-33 years of age. The last group of students who were older than 33 accounted for 24.8% of the group. Of the subjects whose ages were known, 64.5% were in the range of ages considered to be a part of the nontraditional student description (Cross, 1979).

DATA SOURCES

Information gathered on the students included the following: teaching major, ACT scores, NTE scores, overall GPA, birth year, ethnicity, gender, higher education profile which indicated number of courses and junior college versus four-year college attendance, student evaluation scores for two experiences from the supervising teachers and the college supervisors, the semester student teaching

total and the final grade for student teaching. Due to the large sample, it was not possible to get a complete set of data on all students.

TREATMENT OF DATA

The information for the study sample was analyzed using a large correlation matrix. The Pearson correlation coefficients were used in the comparative discussion of the identified variables. All variables with r values of 3.000 or more were scrutinized. Special attention was made to look at patterns or combinations which appeared to recur.

FINDINGS

The data is divided into two groups to reflect the response of the total group and the response of the elementary majors. Although the patterns of response are generally similar, there are a few items which differed and which might serve as fodder for further investigation.

Secondly, the data will be reported in two sections: data related to certification issues and data related to teacher performance. Some generalizations will be made combining achievement in these two areas at this end of this section. The dual discussion will focus only on elementary majors because the specialty tests for the other areas have such great variance that discussion on common findings may be difficult.

CERTIFICATION

In validation of previous findings, there is a high correlation between the composite ACT scores and the three parts of the NTE. The highest correlation is between the composite ACT and the general knowledge section of the NTE for both the total group and the elementary majors. The second highest correlation is for the NTE's communication skills followed by the professional knowledge section for both groups.

CORRELATION OF COMPOSITE ACT WITH NTE CORE BATTERY SCORES

Group	GK-NTE	CS-NTE	PK-Nte
Total Group	r=.6989	r=.6247	r=.5061
Elementary	r=.7093	r=.6431	r=.5475

On closer examination of how the study group did on the individual sections of the ACT in relation to the General Knowledge NTE scores reveals a general similarity between the total group and the elementary group. The slight departure is in the sequence of high scores in which the elementary group did better in the English ACT followed by the Math ACT.

CORRELATION OF INDIVIDUAL ACT SCORES WITH GENERAL KNOWLEDGE NTE

Group	Social Studies	Science	Math	English
Total Group	r=.5823	r=.5649	r=.5022	r=.4831
Elementary	r=.5970	r=.5880	r=.4744	r=.4978

We find the same pattern developing when comparing the specific sections of the ACT with the Communication Skills of the NTE. The sections of highest correlation for both groups is in the English section of the ACT which is a logical conclusion since both the ACT and NTE focus on language skills. The pattern of moderate correlation holds true for both groups for each of the ACT subtests listed below.

CORRELATION - INDIVIDUAL ACT SCORES W/COMMUNICATION SKILLS NTE

Group	English	Soc. Stud.	Science	Math
Total	r=.5462	r=.5335	r=.4835	r=.3895
Elementary	r=.5676	r=.5423	r=.4922	r=.4104

When we look at the comparisons for the professional knowledge portion of the NTE, we do not find as significant correlation scores as the previous two sections. Noteworthy comparisons include the English, social studies and science sections. The other subtests had correlation figures below the r=.3000 level.

CORRELATION -INDIVIDUAL ACT SCORES W/ PROFESSION KNOWLEDGE NTE

Group	English	Soc. Stud.	Science
Total	r=.4852	r=.4802	r=.3652
Elementary	r=.4941	r=.4930	r=.4232

The data shows that there is a moderate correlation between the professional knowledge section of the NTE and the students' GPA and validates the findings of other researchers that there is a link between GPA and the Professional Knowledge NTE score (Pratt, DeLucia, & Williams, 1987; Egan & Ferre, 1989; Tarver & Carr, 1983;

and White & Tierney, 1989). The total group's Professional Knowledge NTE-GPA shows a correlation of r=.4284 while the elementary group's correlation score is r=.4255.

Finally, an interesting correlation is the relationship between the GPA and the students' birth year. In this case, we see a negative r indicating that older students generally did better in grade scores. For the total group, the correlation is r=-.3129 while for the elementary majors, the r=-.3098. This data supports the studies of Bers and Smith (1987) and McConatha, et al. (1986) in which the older students did better than their younger counterparts in GPA scores. Bers and Smith found that older students also did better in placement test scores and course completion rates over their younger classmates. This study is not able to address these two issues. McConatha found that the older students scored higher in the composite score of the ACT and on the subtests however, our data does not verify this part of the matter. The Composite ACT score in relation to the birth year yields an r=.0852 for the total group and an r=.0171 which are not significant figures.

TEACHING PERFORMANCE

In using the MTAI scores as a basis of how students did in their student teaching experience, we find that there are some correlations for the total group which provide linkages which may assist institutions in the counseling and program planning facets of the teaching preparation sequence. There is a good correlation between the students' GPA and the MTAI scores of the USM evaluator for both experiences, r=.4011 and r=.4218 respectively. There is a correlation, though not as strong, for the cooperating teachers' MTAI scores and the students' GPA with r=.3404 and r=.3571 respectively.

To validate the consistency of the student teacher evaluators, there is a very significant correlation between the MTAI raters for each of the evaluation sessions. The cooperating teachers and the USM evaluators had correlation scores of r=.7843 for the first experience and r=.6879 for the second experience.

DUAL COMPARISON: ACADEMIC AND CLASSROOM PERFORMANCE

In singling out the elementary major students who scored 700 or more on their NTE specialty area examination, N=31 or roughly the upper 11% of the group. Of this group, 68% or 22 students were 24 years or older. The GPAs for this group was also very high with a mean GPA of 3.783. In examining the student teaching scores, this group scored a mean student teaching total of 1964 out of a possible 2000 points, resulting in grade of A.

COMPARISON OF STUDENT TEACHING/GPA/BIRTH YEAR DATA

Group	Number	Percent	Specialty Mean	GPA	ST Score Mean
Age 21-23	10	31%	707	3.703	1948
Age 24-33	7	22%	716	3.704	1968
Age 34-older	15	47%	715	3.864	1977

CONCLUSION

It is necessary to look at a wide range of facts to assist the potential teacher to reach his or her optimum in the teacher training program. Review of ACT scores, and GPA patterns can help with course advising and study planning. Students who do not fare well in this area can also be advised and assisted to attend to their weak areas in preparation for the certification tests which generally take the form of standardized tests.

IMPLICATIONS

Assessment of a successful teacher is a complex task when looking at the wholistic picture of academic competency and teaching skills. The use of a multiple assessment approach is necessary not only in the training sequence but also in on-the-job professional improvement. Salzman (1989) recommends the combination of a pencil and paper test of one or more knowledge bases, simulation or interactive video to ascertain problem solving

skills, and finally a professional dossier or portfolio. White and Tierney (1989) add in transcript analysis, interviews and presentations to the list of assessment measures. The combination of measures should include objective measures such as tests, second person observations-feedback-evaluations, student prepared materials and also reflective samples of student-teacher's writing.

These sources of data should be used to assist the student through the teacher training program. It is necessary for college counselors and advisers to use these data sources to customize the study program to optimize learning, address deficiencies and promote certification of teachers. It is necessary to keep in mind the needs and capabilities of the traditional students and the non-traditional students.

Based on the findings of this study, looking for ways to assist the older students entering the teaching profession makes good sense based on their strong profile for success. For the non-traditional students, there may be special accommodations which need to be made as these students often face situational, dispositional and institutional barriers (Iovacchini, Hall & Hengstler, 1985). These students may need support to continue in the teacher training program through group counseling, support groups, career and decision-making workshops, financial assistance and family relationship evaluations (Lamb-Porterfield, Jones & McDaniel (1987). Other considerations to assist the older students may include mentoring and a buddy system to aid the transition to the rigors of college study.

There is a need to organize the data input so that the college counselor or adviser and the student can record progress to best achieve student success in the teacher training program. The dual study of academic competency and teaching skills meld to build an effective and successful teacher. These two aspects of teacher training cannot be isolated from each other. There must be a balance of knowledge and skills to insure the satisfactory preparation of a teacher for the classroom.

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